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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,598	10/24/2003	Hae Il Park	27427.006.00-US	7297

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EXAMINER

WALFORD, NATALIE K

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 04/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/691,598	Applicant(s) PARK, HAE IL	
	Examiner Natalie K. Walford	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

The Amendment, filed on January 23, 2006, has been entered and acknowledged by the Examiner.

Cancellation of claim 21 has been entered.

Claims 1-20 and 22-25 are pending in the instant application.

### *Claim Objections*

Claim 7, 16, 20, 22, and 25 are objected to because of the following informalities:

Claim 7 should read “wherein **THE** thickness of the core adjacent **TO** the attaching portion”.

Claim 16 should read “the core proximate **TO** the screen part”.

Claim 20 should read “and attachment grooves adjacent **TO** the attachment portion”.

Claim 22 has improper claim dependency due to cancellation of claim 21. For examination purposes, claim 22 will depend on claim 20.

Claim 25 has improper claim dependency due to cancellation of claim 21. For examination purposes, claim 25 will depend on claim 20.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 20 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Belica (US 4,754,248).

Regarding claim 20, Belica discloses a core (item 30) of a cathode ray tube in figures 3 and 4, including: a pair of split cores (30a and 30b) fixable to each other, wherein a first opening and a second opening opposing the first opening are definable by the pair of split cores; an attaching portion (area surrounding item 31) wherein a protruding portion of attaching portion protrudes above an exterior surface of the split cores (items 31, 34a, and 34b); and attachment grooves adjacent to the attachment portion wherein the thickness of the split cores between the attachment grooves is different than a thickness of a portion of the split cores defining the first opening. The Examiner notes, that in figure 3, the attaching portion is formed when the spring clip or clamp (item 31) is attached to the core, hence forming an attachment portion. Belica shows in figure 4 that the thickness of the attaching portion (area surrounding item 31) is different from a thickness of a portion of the core (items 30a and 30b). Since the attaching portion is smaller than the entire core (as shown in figure 3), they have different thicknesses.

Regarding claim 22, Belica discloses the core according to claim 21, wherein the thickness of the split cores between the attachment grooves is greater than a thickness of a portion of the split cores defining the first opening (Belica; FIGS. 3 and 4).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 7-16, and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US PUB 2002/0190630) in view of Belica (US 4,754,248).

Regarding claim 1, Lee discloses a cathode ray tube in figure 1, including: a glass front panel (item 1); a funnel (item 6) fastened to the panel, the funnel including a neck part and a screen part opposing the neck part, wherein the screen part is fastened to the panel; a fluorescent screen (item 3) formed on an interior surface of the panel; a shadow mask (item 2) disposed a predetermined distance from the fluorescent screen; an electron gun (item 5) coupled to the neck part for emitting electron beams, the electron beams formed of a plurality of electrons; a deflection yoke (item 4) for deflecting electrons within the electron beams in horizontal and vertical directions, wherein the deflection yoke includes a horizontal deflection coil (FIG. 2, item 41) for horizontally deflecting electrons within the electron beams and a vertical deflection coil (FIG. 2, item 42) for vertically deflecting electrons within the electron beams; a core (FIG. 2, item 44) for reducing loss in the strength of a magnetic field generated by the horizontal and vertical deflection coils; and a holder (FIG. 2, item 43) for holding and insulating the horizontal and vertical deflection coils, but does not expressly disclose that the core includes an attaching portion, wherein along a cross section perpendicular to an axis of the funnel, a thickness of the

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attaching portion of the core is different from a thickness of a portion of the core proximate a portion of the funnel fastened to the panel, as claimed by Applicant.

Belica is cited to show a cathode ray tube with a core having an attaching portion (FIG. 3, item 30). The Examiner notes, that in figure 3, the attaching portion is formed when the spring clip (item 31) is attached to the core, hence forming an attachment portion. Belica shows in figure 4 that the thickness of the attaching portion (area surrounding item 31) is different from a thickness of a portion of the core (items 30a and 30b). Since the attaching portion is smaller than the entire core, they obviously have different thicknesses. Belica teaches that by having the core split, the two halves can be clamped firmly together where a notch is formed for more positive engagement of the spring clips (column 4, lines 3-11).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify Lee's device to include the core including an attaching portion, wherein along a cross section perpendicular to an axis of the funnel, a thickness of the attaching portion of the core is different from a thickness of a portion of the core proximate a portion of the funnel fastened to the panel as suggested by Belica for having more positive engagement of the clamps that is holding the split core together.

Regarding claim 2, the combined reference of Lee and Belica disclose the cathode ray tube according to claim 1, wherein the thickness of the attaching portion is greater than the thickness of the portion of the core proximate the screen part (Lee; FIG. 1 and Belica; FIG. 3).

Regarding claim 7, the combined reference of Lee and Belica disclose the cathode ray tube according to claim 1, but do not expressly disclose that the thickness of the core adjacent the attaching portion is about 1/3 to about 2/3 the thickness of the core including the attaching

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portion, as claimed by Applicant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the thickness of the core adjacent to the attaching portion about  $1/3$  to about  $2/3$  the thickness of the core including the attaching portion, since it has been held that discovering an optimum or workable range involves only routine skill in the art.

Regarding claim 8, the combined reference of Lee and Belica disclose the cathode ray tube according to claim 1, further including attachment grooves along an edge portion of the attaching portion (Belica; FIG. 3, area surrounding items 31, 34a, and 34b). The Examiner notes that Belica discloses that area where the clamp and core meet may be slightly undercut to form a notch or groove (column 4, lines 3-11).

Regarding claim 9, the combined reference of Lee and Belica disclose the cathode ray tube according to claim 8, but do not expressly disclose that the depth of the attachment grooves is about  $1/3$  to about  $2/3$  the thickness of the attaching portion of the core between the attaching grooves, as claimed by Applicant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the depth of the attachment grooves about  $1/3$  to about  $2/3$  the thickness of the attaching portion of the core between the attaching grooves, since it has been held that discovering an optimum or workable range involves only routine skill in the art.

Regarding claim 10, the combined reference of Lee and Belica disclose the cathode ray tube according to claim 8, but do not expressly disclose that an actual depth of the attachment grooves is about 2mm to about 3.5mm, as claimed by Applicant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have an actual depth of

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the attachment grooves about 2mm to about 3.5mm, since it has been held that discovering an optimum or workable range involves only routine skill in the art.

Regarding claim 11, the combined reference of Lee and Belica disclose the cathode ray tube according to claim 8, but do not expressly disclose that the two attachment grooves are spaced apart from each other by a distance of about 10mm to about 14mm, as claimed by Applicant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the two attachment grooves spaced apart from each other by a distance of about 10mm to about 14mm, since it has been held that discovering an optimum or workable range involves only routine skill in the art.

Regarding claim 12, the combined reference of Lee and Belica disclose the cathode ray tube according to claim 8, wherein an exterior surface of the attaching portion of the core between the attachment grooves protrudes from the major exterior surface of the core (Belica; FIGS. 3 and 4).

Regarding claim 13, the combined reference of Lee and Belica disclose the cathode ray tube according to claim 1, wherein the core includes ferrite (Lee; page 4, paragraph 55).

Regarding claim 14, the combined reference of Lee and Belica disclose the cathode ray tube according to claim 8, wherein a bottom exterior surface of the attachment groove and a surface contactable by a clamp are joined together at a corner having a curvature with a predetermined radius, R (Belica; FIGS. 3 and 4).

Regarding claim 15, the combined reference of Lee and Belica disclose the cathode ray tube according to claim 14, but do not expressly disclose that R is between about 1 mm and about 2 mm, as claimed by Applicant. It would have been obvious to one having ordinary skill



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in the art at the time the invention was made to have R between about 1 mm and about 2 mm, since it has been held that discovering an optimum or workable range involves only routine skill in the art.

Regarding claim 16, the combined reference of Lee and Belica disclose the cathode ray tube according to claim 8, wherein the attachment grooves extend to an end portion of the core proximate to the screen part (Belica; FIG. 4).

Regarding claim 18, the combined reference of Lee and Belica disclose the cathode ray tube according to claim 1, wherein an interior surface of the funnel has a cross section, perpendicular to the axis of the funnel, that gradually changes from a substantially circular shape at the neck part to a substantially non-circular shape at the screen part (Lee; FIG. 1).

Regarding claim 19, the combined reference of Lee and Belica disclose the cathode ray tube according to claim 1, wherein an exterior surface of the funnel has a cross section, perpendicular to the axis of the funnel that gradually changes from a substantially circular shape at the neck part to a substantially non-circular shape at the screen part (Lee; FIG. 1).

Claims 3-6 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US PUB 2002/0190630) in view of Belica (US 4,754,248) in further view of van der Meer et al. (US 4,730,145).

Regarding claim 3, the combined reference of Lee and Belica disclose the cathode ray tube according to claim 1, but do not expressly disclose that the thickness of the portion of the core proximate the screen part is about 3mm to about 6mm, as claimed by the Applicant. Van der Meer is cited to show the thickness of a core in a cathode ray tube proximate to the screen

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part is about 3mm to about 6 mm (column 2, lines 36-42). Van der Meer teaches that use of a thin-walled core can help result in a substantially stress-free core (column 1, lines 56-64).

Therefore, it would have been obvious of one of ordinary skill in the art at the time of invention to modify the combined device of Lee and Belica to include a core thickness of about 3mm to 6mm as suggested by van der Meer in order to have a stronger core.

Regarding claim 4, the combined reference of Lee, Belica, and van der Meer disclose the cathode ray tube according to claim 3, wherein the thickness of the portion of the core proximate the screen part is about 4mm to about 5mm (van der Meer; column 2, lines 36-42).

Regarding claim 5, the combined reference of Lee, Belica, and van der Meer disclose the cathode ray tube according to claim 3, but do not expressly disclose that the thickness of the attaching portion of the core is about 4mm to about 6mm, as claimed by Applicant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the thickness of the attaching portion of the core about 4mm to about 6mm, since it has been held that discovering an optimum or workable range involves only routine skill in the art.

Regarding claim 6, the combined reference of Lee and Belica disclose the cathode ray tube according to claim 1, but does not expressly discloses that the thickness of the attaching portion of the core is about 4mm to about 6mm, as claimed by the Applicant. Van der Meer is cited to show the thickness of an attaching portion of the core in a cathode ray tube is about 4mm to about 6mm (column 5, lines 21-27). Van der Meer teaches that use of a thin-walled core can help result in a substantially stress-free core (column 1, lines 56-64).

Therefore, it would have been obvious of one of ordinary skill in the art at the time of invention to modify the combined device of Lee and Belica to include an attaching portion of a

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core of about 3mm to 6mm thickness as suggested by van der Meer in order to have a stronger core.

Regarding claim 17, the combined reference of Lee and Belica disclose the cathode ray tube according to claim 1, but do not expressly disclose that the core weighs between about 160g and about 180g, as claimed by Applicant. Van der Meer is cited to show a cathode ray tube with a core that weighs approximately between 120g and 360g (column 5, lines 25-27).

Claims 23-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belica (US 4,754,248) in view of van der Meer (US 4,730,145).

Regarding claim 23, Belica discloses the core according to claim 20, but does not expressly disclose that the thickness of a portion of the split cores defining the first opening is about 3mm to about 6mm, as claimed by the Applicant. Van der Meer is cited to show the thickness of the split cores is about 3mm to about 6mm in a cathode ray tube (column 2, lines 36-42). Van der Meer teaches that use of a thin-walled core can help result in a substantially stress-free core (column 1, lines 56-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Belica's device to include the thickness of a portion of the split cores defining the first opening about 3mm to about 6mm as suggested by van der Meer in order to have a stronger core.

Regarding claim 24, the combined reference of Belica and van der Meer disclose the core according to claim 23, wherein the thickness of a portion of the split cores defining the first opening is about 4mm to about 5mm (van der Meer; column 2, lines 36-42).

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Regarding claim 25, Belica discloses the core according to claim 21, but does expressly disclose that the thickness of the split cores between the attachment grooves is about 4mm to about 6mm, as claimed by the Applicant. Van der Meer is cited to show split cores with thickness of about 4mm to about 6mm (column 2, lines 36-42). Van der Meer teaches that use of a thin-walled core can help result in a substantially stress-free core (column 1, lines 56-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Belica's device to include the thickness of the split cores between the attachment grooves is about 4mm to about 6mm as suggested by van der Meer in order to have a stronger core.

#### ***Response to Arguments***

Applicant's arguments with respect to claims 1-25 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Contact Information***

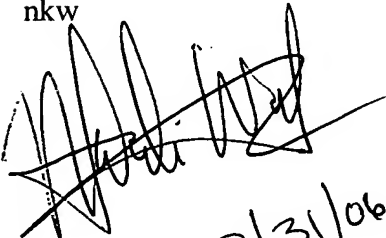
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalie K. Walford whose telephone number is (571)-272-6012. The examiner can normally be reached on Monday-Friday, 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

nkW



3/31/06

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